DOCUMENT RESUME

ED 161 009 CS 004 443

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TITLE A Comparison of Reading Miscues and Writing Miscues.
INSTITUTION Arizona State Univ., Tempe.
SPONS AGENCY National Council of Teachers of English, Urbana, Ill. Research Foundation.
PUB DATE [75]
NOTE 32p.; For related documents, see CS204472-475

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS Elementary Education; Grade 4; Intermediate Grades; *Language Research; *Miscue Analysis; *Reading Research; *Sentence Combining; Spelling; *Writing Skills
IDENTIFIERS *Writing Miscues

ABSTRACT

In order to understand more fully how young people process written language, miscues made by fourth grade students in both the reading process and the writing process were studied. Miscues which occurred in signaled sentence combining exercises were compared with miscues in reading determined by procedures developed by Goodman and associates. The results of the study indicated that there is a high correlation between phonological/pronunciation miscues in reading and spelling miscues in writing, while lexical/syntactic/semantic miscues in reading and similar miscues in writing show distinctively different patterns. The miscues of addition and substitution are more frequent in reading; the miscues of omission are more frequent in writing. Evidence from the phonological/pronunciation miscues in reading supports the Chomskian theories about the relation of the sound structure of English to the orthography. It was concluded that reading and writing should not be kept apart in the instructional process. (HKM)

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A comparison of reading miscues and writing miscues[1]

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CS004443

In order to understand more fully how young people process written language both in reading and in writing, the decision was made to study miscues made by students both in the reading and the writing process. Some problems were immediately evident once the decision was made for although many studies have been done on miscues occurring in the reading process, few, if any, have been done on those occurring in the writing process. One of the reasons for this might be that in reading the student is either on-cue or mis-cued. In writing free compositions, the student writes in such a way that the product of that writing cannot be judged in such a simple or clear-cut fashion. In most free composition the student is judged as having written a good composition or a bad composition, and a good sentence or a bad sentence. Only for spelling or for certain kinds of variance from accepted grammatical patterns can the student be judged as having mis-cued or being on-cue in the free composition paradigm. This is not true, however, for the sentence combining paradigm, especially when sentence types to be written for sentence combining exercises are signalled rather than free.

The reason for this is that, if students are asked to read a sentence such as (1) "Tell me before I go how to remember a hard word" (Burke and Goodman, 1972), they are judged to be on-cue or mis-cued within rather narrow limits. If, for instance, the

students read the sentence "Tell me before I go how to remember the hard word", as well they might, they are judged as having miscued. Similarly, if the students are instructed to combine the following three sentences, (2), (3), and (4), into a fourth sentence (5), but combine them into a sentence such as (6), they have miscued.

2. Wolf was a dog.
3. The dog was strong.
4. The dog was brave.
5. Wolf was a strong and brave dog. (On-cue sentence)
6. The Wolf was a strong and brave dog. (Mis-cued sentence)

It also turns out that signalled sentence combining exercises help in the analysis of spelling miscues. If, for instance, a student writes (7) The store semed interesting, as one did, it might be supposed that there is only one miscue in the sentence; seemed spelled as semed. But actually there are two spelling miscues; the on-cue sentence is (8) The story seemed interesting. Store in (7) is a miscued spelling for story. Such a piece of information would be hard to derive from a free written composition.

So then, it was determined that miscues from reading elicited by procedures developed by Goodman and associates (1973) could be compared with miscues produced during signalled sentence combining exercises since both situations provide language samples that are either on-cue or mis-cued. Any other method for eliciting miscues in writing, it was reasoned, would produce sets of data

which would not be comparable. But problems of comparing reading and writing miscues do not end with the elicitation of data. One problem can be found in the attempt to answer this question: In what theoretical framework can data elicited from a study of reading and writing miscues be analyzed? The most plausible current answer can be found in the theories of Noam Chomsky in particular those which relate most to phonology, spelling, the "conventional English orthorgraphy," and English sound structure in general as set forth in Chomsky and Halle (1965). In this approach to these aspects of language, spelling does not relate directly to sound as in conventional theories such as that of Hanna and Hanna (1966) or through the intermediate step process devised by Venezky (1970). In the Chomsky and Halle presentation, sounds and spellings are related to each other only insofar as they are related to a common underlying form. Thus, the spoken form, [s 'm nt], and the written form, cement, are related to each other insofar as they are derived by rule from the underlying form /sEmente/ (Chomsky and Halle, 1965:148). All this can be visually summarized in Figure I from Ney (1974).

Besides the problem of determining the theoretical context for the analysis of data, some determination has to be made concerning the problems of comparing spoken output with written output. In regard to spelling in writing and sound structure in speech, it is perhaps legitimate to compare the child's substitution of the for this in writing or [ðə] 'the' for

[ðɪs] 'this' in reading since both are likely to occur. But what is a reading of perplexed as [pɝlɛkst] to be compared with? Two steps were taken so that data such as the reading of perplexed above could be utilized in the study: (1) the phonetic form was restructured into a written form using the conventions of English orthography, and (2) the restructured form was then compared with the on-cue form and an analysis was made in terms of letter omission, addition, substitution and reversal needed to arrive at the restructured form. Both of these procedures are implicitly if not explicitly used in a Goodman miscue analysis.

Thus, the phonetic form [pɝlɛkst] would be restructured as perlexed and compared with perplexed. From this it would be concluded that the omission of a p occurred in the miscue. This procedure works quite easily for spelling since step (1) is not necessary in the study of written miscues. When a child spells frightened as frighened it is obvious that a consonant is missing. So it is that the reading and writing miscues of 15 fourth grade students at Evans schools were collected during a sentence combining project and analyzed.

This kind of analysis yields the result seen in Table I. Now, the surprising aspect of the data reported in Table I is this: For the whole group, miscues in reading vary almost directly with miscues in writing (rho .65 $p < .001$). Thus in the analysis of the miscues it is found that vowel/vowel reversals such as theif for thief in writing or trail for trial

in reading account for the smallest number of total spelling/phonological miscues. From this point, the raw number correspondences between reading and writing miscues are only approximate although they are close enough to be interesting. Nevertheless, the raw number correspondences must be interpreted with care since the number of words involving miscues in writing (6764) is somewhat larger than the number of words involving reading miscues (4763). (Both figures are only approximate.) Of more interest for a comparison of reading and writing miscues on the level of spelling and phonology are the Pearson product moment correlations obtained from both the grouped and the ungrouped data. Here it is evident that the substitution of consonants in reading and writing is so similar that it can hardly be a matter of chance. The same could be said for the substitution of vowels.

The question then arises: In terms that can be readily conceptualized, what does this mean? It means that the child who spells discussion as discution (t substituted for ss) is likely to read he told as he hold (substituting h for t). Similarly, the child who writes dark as bark is likely to read then as when. The same is true for substitution of vowels in spelling and reading. The child who reads Jock as Jack is likely to write medicine as midicine, or the child who writes villege for village is likely to read remainder as reminder. This study did not investigate the more specific question of whether

the child who, for example, reads bark for dark also writes bad for dad. It rather presents evidence for the more general question: Do students who make vowel (or consonant) substitutions in writing also do the same in reading? The evidence in Table I indicates that they do.

The question then arises: Why is it that the phonological substitutions in reading correlate very highly with the spelling substitutions in writing, but, as a rule, other kinds of phonological miscues do not correlate as highly with their counterpart spelling miscues (except for the omission of vowels)? A study of Table I will not provide an answer to this question. It simply indicates that a high correlation exists between miscues of spelling involving substitutions of vowels and consonants and miscues of reading involving substitution of vowel and consonant sounds. Here it is interesting to note that such correlation existed mostly in the scores (number of miscues) of the students whose number of reading miscues consistently exceeded the number of writing miscues or whose number of writing miscues consistently exceeded the number of reading miscues. That group of students which fit neither of these categories showed a high level of correlation between reading and writing miscues but not a satistically significant one. At this point, it is interesting to speculate about the reason for the statistically significant correlation between reading and writing vowel reversals for Group 2 and the statistically significant correlation between

the use of additional vowels in reading and writing for Group 3. For members of the second group it means that students who are likely to spell sentence as sentnese are likely to read broad as board (as one student did). For students who read ever as every are also likely to spell had as head. Now it is not exceptional that students should make these kinds of miscues; all of the subjects, except the very good ones, made these kinds of miscues now and again. The difference between Group 2 and Group 3 and the remaining group is this: Group 2 and Group 3 showed a high correlation between reading and writing miscues of certain types. It would seem that this would tend to support the contention made elsewhere (Ney, 1974) that students can be grouped according to the way in which they process written language. Some students apparently use different strategies than other students. Gibson and Levin (1975:335-40) seem to feel that there is little or no direct relation between spelling and reading. The above indicates that there is at certain points. Thus also this study indicates the probability that the Chomskyan approach to English orthography is in part, at least, correct: Spelling and phonology are related to one another in so far as they are related by rules to common underlying forms. This would also be borne out by the fact that the total number of phonology miscues in reading for all students correlates very highly with the total number of spelling miscues in writing for all students (rho .6[illegible], $p < .001$).

Following Kolers (1973:40-41), substitutions, omissions,

and additions of entire words were studied according to their membership in various grammatical form classes. The target words were also separated into those which were three letters or shorter and those which were four letters or longer to see if word length had any effect on the occurence of miscues. (Target word here is the word to be read or written; the ER (expected response) in Goodman's terms.) The result can be seen in Table II through IV. A cursory examination of these tables reveals that the students in the study were systematically involved in a higher proportion of addition and substitution miscues in reading than in writing. For omission miscues, the reverse is true; these students were involved in a greater number of omission misuces in writing than in reading. This generalization holds true for content words as well as function words. In the two cases where reading and writing miscues of omission are more or less equivalent (omission of the indefinite determiner a/an and omission of prepositions), the units involved are less than two letters in length except for three prepositions out of thirteen in the reading miscues and two out of eighteen in the writing miscues. It may be that the shorter length units are skipped more easily in reading and hence are proportionately more frequent than other types of reading miscues when compared to writing miscues, or it may be that young readers attach less importance to determiners such as a/an and prepositions as they endeavor to extract meaning from written text and thus miss them more

frequently. In any case, in the two cases where the writing miscues of omission exceed the reading miscues of omission, the total number of instances was extremely small (one omission of the negative particle, no, and four instances of the omission of the possessive determiners, his, her and etc.)

Again the question can be asked: In concrete terms, what does this mean? It means that students are more likely to read He knows the magic for He knows magic than they are to write Strange people were appearing at the windows for Strange people were appearing at windows. It means also that they are more likely to read . . . take any chances for . . . take a chance than they are to write An elephant which was big and dirty . . . for The elephant which was big and dirty . . . But on the other hand they are less likely to read Lest man resent for Lest man resent them than they are to write They laughed at the quiet and considerated for They laughed at the quiet and considerate man.

To this point, then, a study of miscues in reading and writing of fourth grade students has revealed two facts of importance: (1) miscues of phonology in reading and spelling in writing correlate highly, indicating that on this level reading and writing are similar processes, and (2) miscues of addition, omission and substitution involving entire words show distinctively different patterns in reading and writing -- the miscues of addition and substitution are more frequent in reading; the

miscues of omission are more frequent in writing. It is hypothesized here that the reason for this can be stated in somewhat the following terms: Miscues of phonology and spelling have as their source the manner in which linguistics units are stored as underlying forms and related to surface forms by rule. The spelling and pronunciation of words is governed by the way that these units are stored in the mind and by the manner in which rules relate these underlying forms to surface forms. The phonology and the spelling of words as linguistic units are related to one another insofar as they are related by rule to the same underlying form as in a Chomskyan grammar. If the items are not stored correctly and if the rules relating them are not internalized correctly, the students will make a mismatch between the word in the text and their pronunciation in reading or spelling in writing. The data indicate that generalized processes are the source of phonological miscues in reading and spelling miscues in writing. Therefore, the phonology and spelling miscues are then due to the manner in which young native speakers have stored underlying forms in memory and related them to surface forms by rule and may be related to the students' stage of linguistic development. For the miscues involving addition, substitution and omission of entire words, the situation is somewhat different. Miscues here are the result of the manner in which students process words in reading and writing and since reading and writing are quite different

processes, the patterns of miscues in them is quite different. Thus, spelling and phonology miscues in reading and writing are attributed to linguistic factors; addition, substitution and omission miscues involving lexical/syntactic/semantic units are attributed to processing factors in the somewhat different skills of reading and writing.

Further support for this comes from the following evidence: When a miscue of phonology is made by a young reader, for instance, when a young student reads pencil (OR) for pennicillin (ER), the chances are two to one that the frequency of the (OR) will be higher in a word frequency list than the (ER). (Laboratory corroboration for this can be found in Solomon and Postman (1952), Howes and Solomon (1951) and Rosenzweig and Rostman (1958).) This would seem to indicate that the underlying forms of words used in the reading process are stored in terms of their frequency; the more frequent items have a more secure place in storage. Thus the student usually reads the more frequent form and thus also the miscues of phonology (pronunciation) are due to the manner in which items are stored as underlying forms or related to surface forms by rule. And since phonological and graphological surface forms are related to each other insofar as they are related to the same underlying form, miscues of phonology in reading and spelling in writing tend to be quite similar for any given student. The word frequency effect noted above seems to support at least the reading-phonology part of this proposition.

The difference between writing and reading as far as the manner in which linguistic units are processed can be discerned most easily in the miscues of omission. The larger linguistic units measured in terms of letter length and in terms of their importance to the task of extracting meaning from a text are very seldom omitted in the reading process, but in writing, the reverse is true. The larger units are omitted more frequently. It would appear that the eye, in making its saccades in reading, skips right over the shorter items and lands on the larger items which are also more important semantically for the extracting of meaning from text. But in writing where the pencil moves slower than the mind, the young writers are quite sure they have written the larger items which are more central to meaning; as a result they concentrate on getting the smaller items down and skip the nouns and verbs and adjectives. (The one exception to this in this study can be found in the omission of the auxiliaries where reading and writing miscues correlate quite highly (rho. 5376 significant at the .05 level of probability with 14 degrees of freedom.)

At this point, it is perhaps advisable to look at the reading and writing miscues of selected individuals to see how they differ in processing written English in reading and writing. The first of these readers is the wild guesser who behaves as if he has read Koler's article "Reading is Only Incidentally Visual" and has taken the message of the title too literally.

As a result of rather cavalier treatment of the visual material this individual makes a total of 2.12 phonological miscues per hundred words and 3.4 lexical/syntactic/semantic miscues per hundred words for a total of 5.5 miscues per hundred words. It is, however, the nature of his miscues which earn him the title of the wild guesser. The expected response diverges quite widely from the observed response as in the following:

	Expected Response	Observed Response
1.	But no one gives flowers away.	But those who gives flowers away.
2.	He pressed it in return.	And pressed it in return.
3.	As he pushed the cans this way and that and arranged	And pushed the cans this way and arranged.
4.	thought	brought
5.	They are a dollar and a half.	They're ten dollars and a half.
6.	dollar fifty	fifty dollar

Furthermore, the wild guesser uses very few regressions for the correction of misuces, correcting only 6% of the phonological miscues and 20% of the lexical/syntactic/semantic miscues.

His written miscues are similar. Although in this study the miscues per hundred words of writing are not a significant figure since not all students completed the same exercises nor did they complete the same number of exercises, yet in the exercises completed this individual had 53 spelling miscues in writing which correlates highly with his 33 phonological miscues in reading. A similar statement could be made about his writing

miscues. Furthermore, the writing miscues could also earn him the title of wild guesser.

On-Cue Response	Miscued Response
The crowd, which was growing, became big.	The corud became big and growing.
The happy and contented people watched the dance.	The people happe and contented danced.
They laughed at the quiet and considerate man.	They laughed at the quiet and considerated.

The number of miscues in both reading and writing of the wild guesser are proportionately very high. Thus, the wild guesser is very similar to the impulsive reader in the Readance (1975) study.

One other kind of student is the meticulous reader. Such a student is characterized by a very slow and deliberate oral reading rate of approximately 140 words per minute rather than the more normal reading rates of fourth graders which on occasion reach 225 words per minute. The meticulous student's reading is also characterized by a high percentage of regressions for correction. The wild-guesser mentioned above corrected 6% of the phonological miscues and 20% of the lexical/syntactic/semantic miscues, while the meticulous reader corrected 17% of the phonological miscues and a full 55% of the lexical/syntactic/semantic miscues. At this point, the meticulous student's miscue analysis looks very much like that of a good student. In this study, one

of the good students produced 1 phonological miscue per hundred words and 1.5 lexical/syntactic/semantic miscues per hundred words for a total of 2.5 miscues per hundred words. The meticulous reader produced 1.1 phonological miscues per hundred words and .6 lexical/syntactic/semantic miscues per hundred words for a total of 1.7 miscues per hundred words. Similarly, the good student made regressions to correct 19% of the phonological miscues and 46% of the lexical/syntactic/semantic miscues; these compare very closely to the 20% and 55% of the meticulous reader. Yet the meticulous reader does not appear to be a very good reader. Similarly, the meticulous reader described here wrote at a pace which was much slower than that of other students, frequently not finishing the exercise in the alloted time. Judging by the total number of miscues in both reading and writing, the meticulous student seems to be very similar to the good student, but judging by other factors, this is not the case. In some respects, the meticulous student here is very like the reflective student in the Readance (1975) study. Table VI graphically demonstrates the similarities and differences in these three types of students.

In conclusion, then, a study of miscues in reading and writing would suggest that reading and writing should not be kept apart as they usually are in the instructional process. From a study of miscues in reading and writing, it is quite clear that the manner in which young students pronounce (or mispronounce) words in reading is related to the manner in which they spell

(or misspell) words in writing. It would therefore seem counter-productive to keep reading, writing and spelling apart as they are so often kept apart in the instructional process today. Materials for the teaching of reading and writing and spelling should obviously be related so that students are aided in their storing of underlying forms in memory and in their effort to form rules which relate the underlying forms thus stored to the pronunciation of items that they read and their spelling of items that they write.

Similarly, the same general principle applies to the teaching of other aspects of reading and writing. From a study of miscues, it is apparent that the language processing skills for reading and writing are somewhat different since young students omit a higher proportion of content words in writing than they do in reading. But the response in the instructional process must be similar. Reading and writing should be taught as mirror images of the same process at this point and the students must be clearly instructed in this difference between the two processes so that their skills are enhanced. For the teaching of the phonological aspects of reading and spelling, reading and writing must be taught together so that similarities can be strengthened; for the lexical/syntactic/semantic aspects of reading and writing, the two skills must be taught together so that differences can be clearly pointed out.

Furthermore, just as there exists in the Goodman model for

reading (1970: 30-1) a monitoring phase in which readers compare their first impression with the visual cues that they have picked up, so it is apparent that in the writing process there is a monitoring phase in which the students compare what they have put down on paper to the mental image that they are retaining in memory and, for writing, this monitoring phase entails reading. A greatly simplified diagram of this phase of the writing process can be seen in Figure II. It is hypothesized that the high proportion of omission of content words and some function words in writing is attributable to the fact that not only do the students miscue in the writing of a word or phrase but they miscue in the reading of the monitoring phase. They read what they think is there. Consequently, since reading and writing are so intimately linked, they should not be separated in the instructional process.

Even further evidence for this close link between reading and writing can be found in the study of the reading and writing miscue records of individual students. Those students who miscue extensively and violate the meaning and the syntax of the original rather seriously in reading will be inclined to do the same in writing. The same can be said for the careful readers. They will carefully preserve the asked-for response in writing. Thus, it would seem that just as reading strategy lessons can be devised on the basis of miscues records of readers (Piper, 1975) so also writing strategy lessons can be designed

on the writing miscues of individual students. From this study, it appears that such lessons could be designed for groups of students who have similar records, thus obviating the necessity of designing a different course of instruction for each student.

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Table I: Reading and Writing Miscues of Spelling and Phonology: Pearson Product Moment Correlation

	All Students	Group 1: Higher Writing Miscue	Group 2: Higher Reading Miscue	Group 3: Mixed	Means: All Students Reading	Means: All Students Writing
Additional Consonant	.1773	.5265	.2500	.0736	3.686	2.600
Additional Vowel	.3104	.0406	.3889	.8733*	1.333	2.066
Vowel Consonant Reversal	.3401	-.2209	.9798***	.5477	1.800	1.200
Vowel/vowel Reversal	.0671	.0000	.0000	.5774	.066	.733
Omitted Consonant	.4059	.5339	.5895	.6957	4.000	5.933
Omitted Vowel	.1849	.8586***	.7838*	-.1925	3.066	4.266
Substituted Consonant	.4790**	.8748***	.7987*	.5538	5.066	4.333
Substituted Vowel	.5171**	.8162**	.9695***	.5734	5.866	3.866
	df=14	df=5	df=4	df=3	n=15	n=14

*Significant at the .05 level of probability, one-tailed t-test.

**Significant at the .02 level of probability, one-tailed t-test.

***Significant at the .01 level of probability, one tailed t-test.

Table II: MISCUES IN READING WHICH EXCEED MISCUES IN WRITING BY A RATIO OF 2:1 OR GREATER

	Miscues Involving Function Words					
	Three letters in length or less			Four letters in length or more		
	Writing	Reading	Ratio	Writing	Reading	Ratio
Additional a/an	2	5	1:2.5			
Additional the	5	13	1:2.6			
Additional Preposition	1	18	1:18	0	1	0:1
Substitution of Auxiliary	0	4	0:4	0	4	0:4
Substitution of Adverb	0	2	0:2	0	11	0:11
Substitution of Conjunction	0	9	0:9			
Substitution of Demonstrative Determiner	0	2	0:2	0	3	0:3
Substitution of Definite Determiner, the	4	13	1:3.3	1	10	1:10
Substitution of Pronoun	1	26	1:2	0	6	0:6
Omission of Possessive Determiner	0	4	0:4			
Omission of Negative	0	1	0:1			
Content Words						
Substitution of Noun				3	7	1:2.3
Substitution of Verb	0	3	0:3	5	14	1:2.8
Substitution of Adjective				1	4	1:4

Table III: MISCUES IN WRITING WHICH EXCEED MISCUES IN READING BY A RATIO OF 2:1 OR GREATER

	Three letter in length or less			Four letters in length or more		
Function Words	Writing	Reading	Ratio	Writing	Reading	Ratio
Additional Auxiliary	7	4	1.75:1	7	2	3.5:1
Substitution of Indefinite Determiner, a/an	4	0	4:0			
Omission of Conjunction	22	8	2.75:1	1	3	1:3
Omission of Definite Determiner	25	11	2.27:1			
Omission of Pronoun	11	4	2.75:1			
Omission of Relative Pronoun which, who	2	0	2:0	4	0	4:0
Substitution of Relative Pronoun which, who	20	0	20:0	17	0	17:0
Content Words						
Additional Noun	10	0	10:0	4	1	4:1
Substitution of Noun Phrase				3	0	3:0
Omission of Adjective	3	2	1.5:1	21	1	21:1
Omission of Prepositional Phrase				12	1	12:1
Omission of Verb	3	0	3:0	28	4	7:1
Omission of Verb Phrase				15	0	15:0
Omission of Noun	22	0	22:0	19	0	19:0
Omission of Noun Phrase				25	0	25:0

TABLE III: MISCUES IN WRITING WHICH EXCEED MISCUES IN READING BY A RATIO OF 2:1 OR GREATER

	Three letters in length or less			Four letters in length or more		
Inflections	Writing	Reading	Ratio	Writing	Reading	Ratio
Substitution of EN-form for ING-form				3	1	3:1
Additional Past Tense Marker	0	1	0:1	8	2	4:1
Omission of ING-form				8	2	4:1
Agreement of Subject-Verb	11		11:0	1	1	1:1
Additional ING-form				0	2	0:2
Substitution of ED-form	2		2:0	5	1	5:1

TABLE IV: MISCUES IN READING AND WRITING SHOWING A LESS THAN 2 TO 1 RATIO

	Three letters in length or less			Four letters in length or more		
Function Words	Writing	Reading	Ratio	Writing	Reading	Ratio
Additional Adverb	1	1	1:1			
Additional Pronoun	11	9	1:1.2	5	2	2.5:1
Substitution a/an for the	4	4	1:1			
Omission of Indefinite Determiner a/an	5	5	1:1			
Omission of Preposition	18	13	1.4:1	1	1	1:1
Content Words						
Additional Adverb	0	1	0:1	1	0	1:0
Additional Verb				2	2	1:1
Omission of Adverb				6	8	1:1.3
Substitution of Verb				2	3	1:1.5
Inflections						
Additional Z-plural				5	6	1:1.2

Table VI: MIS-UES IN READING AND WRITING OF SELECTED STUDENTS

FIGURE I: Schematic Representation of Three Approaches to Relating English Sounds to English Spelling

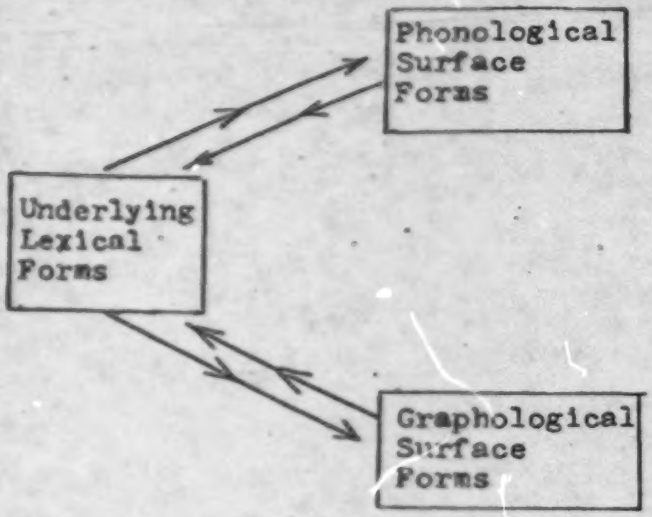


Diagram A: The Chomsky and Halle Procedure: Underlying lexical forms are mapped into phonological surface forms on the one hand and graphological surface forms on the other.

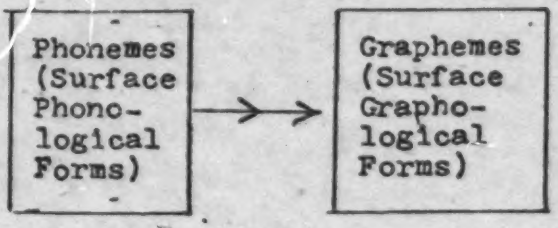


Diagram B: The Procedure in the Hanna Study: Phonemes (phonological surface forms) are mapped directly into graphemes (grapholgical surface forms.)

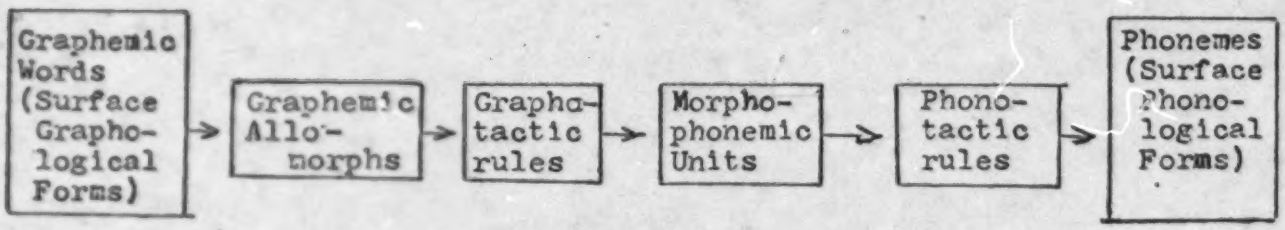
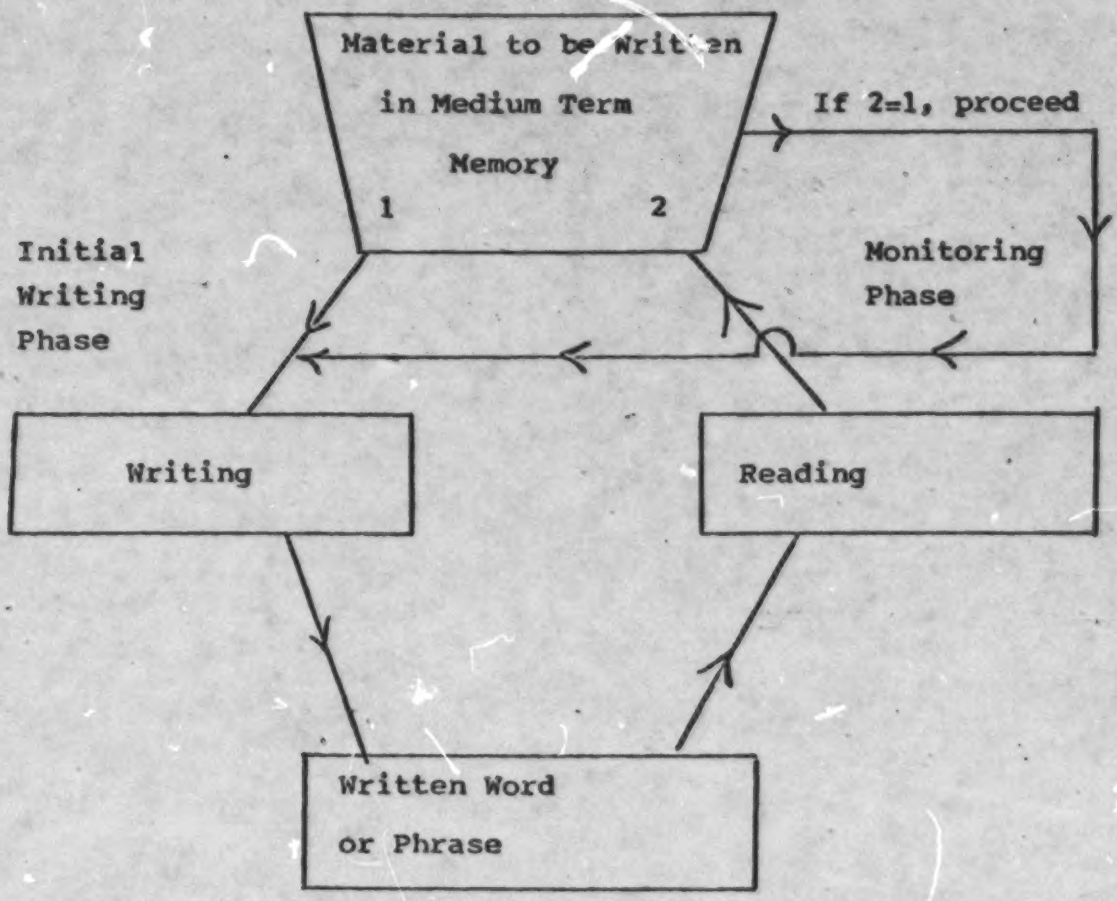


Diagram C: The Venezky Procedure: Surface graphological forms (graphemic words) are mapped into surface phonological forms (phonemes) through a series of intermediate stages. The Venezky procedure is not necessarily more complex than the procedure employed by Chomsky and Halle although the diagram may seem to indicate that it is.

Figure II: SCHEMATIC DIAGRAM OF TWO PHASES OF THE WRITING PROCESS



[1]This study was supported in part by a grant from the Research Foundation of the National Council of Teachers of English. Thanks are herewith expressed to E. Hiebert and J. Schmid for their part in the study.